



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,527	03/15/2004	Roch Guerin	123097.0501	3985
7590 Pepper Hamilton LLP One Mellon Center 500 Grant Street, 50th Floor Pittsburgh, PA 15219			EXAMINER YUEN, KAN	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 07/31/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,527	Applicant(s) GUERIN ET AL.	
	Examiner Kan Yuen	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17 and 22 is/are rejected.
- 7) ☒ Claim(s) 15, 16, 18-21, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/14/20004</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 13 has been renumbered as claim 14. The subsequent claims are changed respectively.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-14 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Cortez et al. (Pat No.: 7130262).

For claim 1, Cortez et al. disclosed the method of receiving information corresponding to a first network event that may affect a path for one or more packets traveling in a multi-area routing domain, wherein the path is associated with a

Art Unit: 2616

destination address (see column 3, lines 40-67, and see column 4, lines 50-67, and see fig. 1, and see fig. 2). As shown, the node controllers shown in fig. 1 source nodes 16 and destination node 18, are continuously monitoring events the network. A change of network such as link failure event may cause existing circuit or path to fail. The adjacent nodes of the failure link may quickly identified the path or circuit affected by the failure and send a notification information to nodes involved with the effected path. The link failure event is considered as the first network event; maintaining a set of current candidate exit points out of a first area in the domain, wherein the candidate exit points are associated with the destination address (see column 4, lines 50-67, and see fig. 2). After the detection of failure in the shortest path, the controller nodes quickly identify the path it needs to restore. The node controller, will send a restoration weighting signal in a link 22 for establishing a restoration path to the destination. The restoration path contains a set of alternative or candidate nodes; determining whether the first network event caused the path to change and if the first network event caused the path to change, identifying the network event as a cause for the path to change (see column 4, lines 50-67); The node adjacent to the link failure event noticed a change in the network is required. Therefore it needs to identify the circuits or paths affected by this event, and quickly send this information to the nodes that originated the affected circuits.

Regarding claim 2, Cortez et al. also disclosed the method of identifying a set of taken exit points within the set of current candidate exit points (see column 4, lines 9-20). To establish an alternative or candidate path, the controllers need to send out restoration weighting information to other nodes, to gain candidate nodes. The

Art Unit: 2616

candidate nodes is gained based on the restoration weighting factor to meet the requirement of quality of service; and determining whether the set of taken exit points changed after the occurrence of the network event (Cortez et al. see column 4, lines 50-67). After the link failure event occurs in the shortest path, the adjacent node of the occurrence event will send out the notification to the node controllers. The node controllers will establish an alternative path. The alternative path is established based on different factor than the shortest path.

Regarding claim 3, Cortez et al. also disclosed the method of maintaining a set of shortest paths associated with the current candidate exit points (see column 3, lines 40-67). The system has the capability to establish a service path, and a restoration or alternative path. A service path is based on the shortest distance from both end nodes. The restoration path is established based on the maximum available capacity of a link; determining whether the set of shortest paths changed after the occurrence of the network event (see column 2, lines 20-45). The restoration path can be changed due to the link failure event, because alternative nodes may be reserved for other path. Therefore the restoration path can be changed due to the occurrence of the failure event.

Regarding claim 4, Cortez et al. also disclosed the method of if the first network event did not cause the path to change, receiving one or more second network events and repeating the determining and generating steps for the one or more second network events (see column 1, lines 32-50). The node will determine if the service or restoration

Art Unit: 2616

path does not meet the requirement of QoS, the link will be considered as failure. If the path meets the requirement, it will be considered as a good link.

Regarding claim 5, Cortez et al. also disclosed the method of a node in the first area is identified as a candidate exit point for a path in the area and towards a destination address if the node advertises in the area a longest matching route for the address (see column 3, lines 40-67, and fig. 1). The node controller 16 is considered as the candidate exit point to the end node controller 18, as it indicates the largest or longest route in the shortest path.

Regarding claim 6, Cortez et al. also disclosed the method of a node in the first area is identified as a taken exit point for a path in the area and towards a destination address if the node is a candidate exit point and is the actual exit point from the area used to reach the destination address (see column 3, lines 40-67, and fig. 1). A node which has the maximum available capacity is considered as a qualified node to be a candidate in the restoration path, and therefore is identified as the taken exit point.

Regarding claim 7, Cortez et al. also disclosed the method of determining whether the network event comprises shortest path events and exit point events. (see column 4, lines 28-50). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost, and these priorities can represent shortest path events and exit point event.

Regarding claim 8, Cortez et al. also disclosed the method of network events classified as shortest path events are used to determine if the shortest paths of exit

Art Unit: 2616

points in the set of candidate exit points have been affected (see column 3, lines 40-67, and see column 4, lines 50-67, and see fig. 1, and see fig. 2). As shown, the node controllers shown in fig. 1 source nodes 16 and destination node 18, are continuously monitoring events the network. A change of network such as link failure event may cause existing circuit or path to fail. The adjacent nodes of the failure link may quickly identified the path or circuit affected by the failure and send a notification information to nodes involved with the effected path. The link failure event is considered as the first network event; and network events classified as either shortest path events or exit point events are used to determine if the set of taken exit points or their shortest paths have been affected (see column 4, lines 28-67). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost, and these priorities can represent shortest path events and exit point event. In the case shown in the reference, the link failure event occurs in the shortest path. The failure is determined based on the requirement set in the shortest path.

Regarding claim 9, Cortez et al. also disclosed the method of receiving information corresponding to a first network event that may affect a path for one or more packets traveling in a multi-area routing domain (see column 3, lines 40-67, and see column 4, lines 50-67, and see fig. 1, and see fig. 2). As shown, the node controllers shown in fig. 1, source nodes 16 and destination node 18, are continuously monitoring events the network. A change of network such as link failure event may cause existing circuit or path to fail. The adjacent nodes of the failure link may quickly identified the

path or circuit affected by the failure and send a notification information to nodes involved with the effected path. The link failure event is considered as the first network event; maintaining a set of current candidate exit points for the path out of a first area (see column 4, lines 50-67, and see fig. 2). After the detection of failure in the shortest path, the controller nodes quickly identify the path it needs to restore. The node controller, will send a restoration weighting signal in a link 22 for establishing a restoration path to the destination. The restoration path contains a set of alternative or candidate nodes. The restoration path will replace the shortest path or the first area; determining whether the first network event is a shortest path event or an exit point event (see column 4, lines 28-67, and see fig. 2). The effected path is the shortest path; if the first network event is a shortest path event, determining whether the network event has changed either the set of taken exit points or a shortest path associated with at least one of the taken exit points (see column 4, lines 50-67); The node adjacent to the link failure event noticed a change in the network is required. Therefore it needs to identify the circuits or paths affected by this event, and quickly send this information to the nodes that originated the affected circuits. The controllers received the information will quickly send out restoration signals to establish an alternative path.

Regarding claim 10, Cortez et al. also disclosed the method of a node in the first area is identified as a candidate exit point for a path in the area and towards a destination address if the node advertises a longest matching route for the address in the area (see column 3, lines 40-67, and fig. 1). The node controller 16 is considered as

the candidate exit point to the end node controller 18, as it indicates the largest or longest route in the shortest path.

Regarding claim 11, Cortez et al. also disclosed the method of a node in the first area is identified as a taken exit point for a path in the area and towards a destination address if the node is a candidate exit point and is the actual exit point from the area on a minimum total cost path used to reach the destination address (see column 3, lines 40-67, and fig. 1) A node which has the maximum available capacity is considered as a qualified node to be a candidate in the restoration path, and therefore is identified as the taken exit point.

Regarding claim 12, Cortez et al. also disclosed the method of the network event is identified as the root-cause for a path change if either of the determining steps identifies the network event as having affected the set of taken exit points or their shortest paths (see column 4, lines 28-50). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost, and these priorities can represent shortest path events and exit point event.

Regarding claim 13, Cortez et al. also disclosed the method of establishing if the first network event may affect any shortest path of any exit point in the set of current candidate exit points (see column 3, lines 40-67, and see column 4, lines 50-67, and see fig. 1, and see fig. 2). As shown, the node controllers shown in fig. 1, source nodes 16 and destination node 18, are continuously monitoring events the network. A change of network such as link failure event may cause existing circuit or path to fail. The

Art Unit: 2616

adjacent nodes of the failure link may quickly identified the path or circuit affected by the failure and send a notification information to nodes involved with the effected path. The link failure event is considered as the first network event; recomputing the shortest paths that may have been affected by the network event (see column 4, lines 50-67, and see fig. 2). After the detection of failure in the shortest path, the controller nodes quickly identify the path it needs to restore. The node controller, will send a restoration weighting signal in a link 22 for establishing a restoration path to the destination. The restoration path is a new shortest path; comparing the recomputed shortest paths to the original shortest paths to determine whether any shortest paths have changed (see column 1, lines 49-67). The system uses the Dijkstra algorithm to establish service path and restoration path. After the detection of shortest link failure, the system performs the algorithm to establish a new shortest path by comparing the preset value in adjacent nodes of the failure link based on the requirement set for restoration path. The new path will be established, and path is changed based on the algorithm; and determining if the set of exit points taken by the path to exit the area has changed (see column 4, lines 50-67); The node adjacent to the link failure event noticed a change in the network is required. Therefore it needs to identify the circuits or paths affected by this event, and quickly send this information to the nodes that originated the affected circuits.

Regarding claim 14, Cortez et al. also disclosed the method of identifying the first network event as a root-cause for a path change if method identifies the network event as having affected either the set of taken exit points or their shortest paths (see column 4, lines 50-67, and see fig. 2). After the detection of failure in the shortest path, the

Art Unit: 2616

controller nodes quickly identify the path it needs to restore. The node controller, will send a restoration weighting signal in a link 22 for establishing a restoration path to the destination. The restoration path contains a set of alternative or candidate nodes.

Regarding claim 17, Cortez et al. also disclosed the method of a network event is classified in the second category if it corresponds to a decrease in the cost of a link in the area (see column 4, lines 28-50). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost. The lowest cost requirement can be classified as one of the network event.

Claim Rejections - 35 USC § 103

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

Art Unit: 2616

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cortez et al. (Pat No.: 7130262), in view of Bauer (Pub No.: 2001/0017845).

For claim 22, Cortez et al. disclosed all the subject matter of the claimed invention with the exception of determining if the exit point event is a change of cost for reaching the destination through one of the candidate exit points that affects the selection of taken exit points for the are; identifying if the exit point event corresponds to the advertisement of a best matching route that affects the selection of taken exit points from the area. Bauer from the same or similar fields of endeavor teaches the method of determining if the exit point event is a change of cost for reaching the destination through one of the candidate exit points that affects the selection of taken exit points for the are; identifying if the exit point event corresponds to the advertisement of a best matching route that affects the selection of taken exit points from the area (see paragraph 0015, lines 1-10). The system shows that the link selection is determined based on the cost of a link. Therefore the exit point event is set based on the cost of a

Art Unit: 2616

link. The lower the cost the better the link. In some case other parameters can implicitly represents the cost parameter, one example is bandwidth, which means the cost and the bandwidth can be considered as changing parameters. The change of cost of each link can be significantly effected in term of link selection. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Bauer in the network of Cortez et al. The motivation for using the method as taught by Bauer in the network of Cortez et al. being that optimal path can be selected based on the capabilities of each node.

Allowable Subject Matter

8. Claims 15,16, 18-21, 23, 24 would be allowable if rewritten to overcome the objection(s), set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art failed to teach the method of:

Regarding to claim 15, if the network event is classified in a first category, further checking if the network event affected a link of a shortest path to a candidate exit point, and recomputing the shortest path if it did; if the network event is classified in a second category, further checking if the network event affected a link of a shortest path to a candidate exit point, and recomputing the shortest path if it did not; if the network event is classified in a third category, recomputing the shortest paths of all candidate exit points in the set of candidate exit points and; if the network event is classified in a fourth

Art Unit: 2616

category, further checking if the shortest path event affected a link or a node of a shortest path to a candidate exit point, and recomputing the shortest path if it did.

Regarding to claim 20, if the set of chosen exit points has not changed, identifying if the shortest paths of the chosen exit points have changed; if either the set of chosen exit points or their shortest paths have changed, identifying the set of taken exit points used by the path to exit the area; if the set of taken exit points used by the path to exit the area or their shortest paths have changed identifying the shortest path event as the root-cause for a path change.

Regarding to claim 23, if the exit point event is neither a cost decrease on a chosen exit point nor a cost increase on a non-chosen exit point, updating the total cost of the paths to the destination through the candidate exit points affected by the exit point event; identifying the set of chosen exit points; if the set of chosen exit points have changed, identifying the set of taken exit points and their shortest paths; examining if the set of taken exit points or their shortest paths have changed.

Regarding to claim 24 if the set of candidate exit points has changed, computing shortest paths to the new candidate exit points and selecting chosen exit points; determining if the set of chosen exit points has changed or if new candidate exit points belong to the shortest paths of chosen exit points; identifying taking exit points and their shortest paths; examining if the set of taken exit points or their shortest paths have changed.

Conclusion


9. The prior art made or record and not relied upon is considered pertinent to applicant's disclosure. Carpini et al. (Pub No.: 2003/0063613), Shiomoto et al. (Pat No.: 6639897), and Narvaez-Guarnieri et al. (Pat No.: 6347078), are shown systems which are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kan Yuen whose telephone number is 571-270-2413. The examiner can normally be reached on Monday-Friday 10:00a.m-3:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ky


RICKY Q. NGO
SUPERVISORY PATENT EXAMINER

Application/Control Number: 10/802,527

Page 15

Art Unit: 2616